

CLAIMS:

1. A digital electronic circuit comprising:

- a locally synchronous circuit module with a clock input and storage elements, the clock input being used to time storage of information transferred between the storage elements in the locally synchronous circuit module;

5 - a delay circuit having an input and output coupled to the clock input, the delay circuit providing a delay which when incorporated in a clock oscillator ensures a clock period that is at least as long as needed to transfer information between the storage elements;

- a further circuit;

10 - a handshake circuit for generating handshake signals for timing information transfer between the storage elements and the further circuit, the handshake circuit comprising the delay circuit, so that at least part of the handshake signals during a handshake transaction are timed by travelling through the delay circuit and are applied to the clock input to clock the locally synchronous circuit module.

15 2. A digital electronic circuit according to Claim 1, the circuit comprising a rerouting circuit for rerouting a coupling between the output and the input of the delay circuit under control of the locally synchronous circuit module, the rerouting circuit rerouting the coupling between a local path that causes the delay line to generate a local clock oscillation autonomously, and a handshake path that causes the delay line to pass the at least part of the
20 handshake signals through the handshake circuit synchronized by the further circuits.

3. A digital electronic circuit according to Claim 2, wherein the further circuit is arranged to operate using temporally overlaid information exchange transactions, the local path comprising an disabling input for disabling feedback of signal transitions from the
25 output to the input of the delay circuit, the disabling input being coupled to an output of the further circuit that disables feedback until the further circuit has completed a final part of a last previous information exchange transaction.

4. A digital electronic circuit according to Claim 3, comprising an enabling circuit for overruling disabling of the coupling via the local path by the further circuit before the final part of the last previous information exchange transaction has been completed, said overruling being selected under control of a command signal from the locally synchronous circuit module.

5. A digital electronic circuit according to Claim 2, wherein the further circuit comprises a plurality of units each with a respective handshake interface, the rerouting circuit rerouting the coupling via a selected one of the handshake interfaces, said selected one of the handshake interfaces being selected under control of the locally synchronous circuit module.

6. A digital electronic circuit according to Claim 2, wherein the further circuit comprises a memory with an address and data interface coupled to the locally synchronous circuit module, the information transfer between the storage element and the further circuit comprising transfer of an address and data, the rerouting circuit routing the coupling through the handshake path when the locally synchronous circuit module accesses the memory and subsequently through the local path.

7. A digital electronic circuit according to Claim 3, wherein the further circuit comprises a memory with an address and data interface coupled to the locally synchronous circuit module, the memory being arranged to generate a ready signal signalling that data is available at the same time as signalling that the memory is ready to receive a next address, the handshake path, when active, feeding the ready signal to a request input of the memory, the disabling input being arranged to disable the local path until the ready signal indicates that data is available.

8. A digital electronic circuit according to Claim 1, wherein the locally synchronous circuit module is one of a plurality of locally synchronous circuit modules, each locally synchronous circuit module having its own handshake circuit and its own delay circuit coupled to its clock input, the digital electronic circuit comprising an arbiter and a multiplexer and/or demultiplexer coupled between the locally synchronous circuit modules and the handshake circuits, the arbiter arbiting an order in which the handshake transactions from different ones of the locally synchronous circuit modules may progress accompanied by

information exchange from the locally synchronous circuit module via the multiplexer and/or demultiplexer.

9. A digital electronic circuit according to Claim 8, wherein the further circuit is
5 a memory that transfers read data in overlaid fashion with addresses, the digital electronic circuit comprising a respective exchange module for each locally synchronous circuit module, the exchange module being designed to make the memory appear as if it was not shared with any other locally synchronous circuit module.

- 10 10. A system component comprising:
- a locally synchronous circuit module with a clock input and storage elements, the clock input timing storage of information transferred between the storage elements in the locally synchronous circuit module;
 - a delay circuit having an input and output coupled to the clock input, the delay circuit
15 providing a delay that is at least as large as a time interval needed for transferring information between the storage elements;
 - a connection for connecting a further circuit;
 - a handshake circuit for generating handshake signals for timing information transfer between the storage elements and the connection for the further circuit, the handshake circuit
20 comprising the delay circuit, so that at least part of the handshake signals during a handshake transaction are timed by travelling through the delay circuit and are applied to the clock input to clock the locally synchronous circuit module.